

DETAILED ACTION

Claim Objections

Applicant is advised that should Claim 14 be found allowable, **Claim 15** will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. Additionally, should Claim 31 be found allowable, **Claim 32** will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 7 – 15, 17, 19 – 22, and 24 - 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 900 808 to Hegi et al. in view of US 5,804,609 to Ohnishi et al.

Regarding Claims 1 and 7 - 9. Hegi et al. teach a photosensitive composition irradiated by ultraviolet light to form a cured, porous product (Page 10, Paragraph 38). The photosensitive composition comprises photopolymerizable monomers, materials that are incompatible these monomers, common solvents which have solubility in both the monomers and the incompatible materials, and photopolymerization initiators

(Page 2, Paragraph 12). Examples of the incompatible materials include water and triethanolamine (Paragraph 23). While Ohnishi et al. do not expressly disclose the surface tension value of triethanolamine, Paragraph 79 of the Instant Specification discloses it to have a surface tension of 53.1×10^{-5} N/cm. The solvent may be isopropyl alcohol (Paragraph 25). While Ohnishi et al. do not expressly disclose the surface tension value of isopropyl alcohol, Paragraph 79 of the Instant Specification discloses it to have a surface tension of 25.2×10^{-5} N/cm.

Hegi et al. are silent regarding the surface tension of the photopolymerizable monomers used. However, Ohnishi et al. also teach a composition comprising photopolymerizable monomers such as perfluorooctylethyl methacrylate (Column 8, Lines 23 - 28). While Ohnishi et al. do not expressly disclose a surface tension value, Lines 8 - 10 on Page 31 of the Instant Specification indicate the surface tension of perfluorooctylethyl methacrylate is 37.8×10^{-5} N/cm. Hegi et al. and Ohnishi et al. are analogous art as they are from the same field of endeavor, namely compositions comprising photopolymerizable monomers and photopolymerization initiators. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use perfluorooctylethyl methacrylate as one of the photopolymerizable monomers in the photosensitive composition taught by Hegi et al. The motivation would have been that perfluorooctylethyl methacrylate provides advantages such as increased hardness in the final cured product.

Regarding Claim 3. Hegi et al. teach the composition of Claim 1 additionally comprising photopolymerizable monomers such as neopentyl glycol diacrylate and trimethylolpropane triacrylate (Page 3, Paragraphs 16 and 17).

Hegi et al. do not teach the claimed amount of other photopolymerizable monomers relative to a photopolymerizable monomer with a surface tension of not

more than 25×10^{-5} N/cm. However, Ohnishi et al. also teach a composition comprising photopolymerizable monomers wherein perfluorooctylethyl methacrylate, for example, may be added such that comprises 0.1 – 50% by weight of the total polymerizable resin material (Column 8, Lines 23 - 28). At the time of invention, it would have been obvious to a person of ordinary skill in the art to add perfluorooctylethyl methacrylate in the amount taught by Ohnishi et al. to the photosensitive composition taught by Hegi et al. The motivation would have been that the specified amount of perfluorooctylethyl methacrylate would provide advantages such as a desirable degree of hardness in the final cured product.

Regarding Claim 17. Hegi et al. teach the composition of Claim 3 comprises materials that are incompatible with the photopolymerizable monomers (Page 2, Paragraph 12). Examples of the incompatible materials include water and triethanolamine (Page 7, Paragraph 23).

Regarding Claim 33. Hegi et al. teach the composition of Claim 17 wherein photopolymerizable monomer may be esters of compounds having an acryloyl group (Pages 3 - 6).

Hegi et al. are silent regarding the surface tension of the photopolymerizable monomers used. However, Ohnishi et al. also teach a composition comprising photopolymerizable monomers such as perfluorooctylethyl methacrylate (Column 8, Lines 23 - 28). While Ohnishi et al. do not expressly disclose a surface tension value, Lines 8 – 10 on Page 31 of the Instant Specification indicate the surface tension of perfluorooctylethyl methacrylate is 37.8×10^{-5} N/cm. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use perfluorooctylethyl methacrylate as one of the photopolymerizable monomers in the photosensitive composition taught by Hegi et al. The motivation would have been that

perfluorooctylethyl methacrylate provides advantages such as increased hardness in the final cured product.

Regarding Claim 34. Hegi et al. teach the composition of Claim 17 wherein the compound that is incompatible with the photopolymerizable monomer is triethanol amine (Page 7, Paragraph 23).

Regarding Claim 35. Hegi et al. teach the composition of Claim 17 wherein the solvent is isopropyl alcohol (Page 8, Lines Page 25).

Regarding Claim 36. Hegi et al. teach the composition of Claim 17 is irradiated by ultraviolet light to form a cured, porous product (Page 10, Paragraph 38). Furthermore, the synthesis of the porous resin cured product via photo-curing is a product-by-process limitation that is not further limiting in as so far as the structure of the product is concerned. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695,698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Once a product appearing substantially identical is found, the burden shifts to the applicant to show an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1993).

Regarding Claim 19. Hegi et al. teach the composition of Claim 3 wherein the photopolymerizable monomer may be esters of compounds having an acryloyl group (Pages 3 - 6).

Hegi et al. are silent regarding the surface tension of the photopolymerizable monomers used. However, Ohnishi et al. also teach a composition comprising photopolymerizable monomers such as perfluorooctylethyl methacrylate (Column 8, Lines 23 - 28). While Ohnishi et al. do not expressly disclose a surface tension value, Lines 8 - 10 on Page 31 of the Instant Specification indicate the surface tension of perfluorooctylethyl methacrylate is 37.8×10^{-5} N/cm. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use perfluorooctylethyl methacrylate as one of the photopolymerizable monomers in the photosensitive composition taught by Hegi et al. The motivation would have been that perfluorooctylethyl methacrylate provides advantages such as increased hardness in the final cured product.

Regarding Claim 20. Hegi et al. teach the composition of Claim 3 wherein the compound that is incompatible with the photopolymerizable monomer is triethanol amine (Page 7, Paragraph 23).

Regarding Claim 21. Hegi et al. teach the composition of Claim 3 wherein the solvent is isopropyl alcohol (Page 8, Lines Page 25).

Regarding Claim 22. Hegi et al. teach the composition of Claim 3 is irradiated by ultraviolet light to form a cured, porous product (Page 10, Paragraph 38). Furthermore, the synthesis of the porous resin cured product via photo-curing is a product-by-process limitation that is not further limiting in as so far as the structure of the product is concerned. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different

process." *In re Thorpe*, 777 F.2d 695,698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Once a product appearing substantially identical is found, the burden shifts to the applicant to show an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1993).

Regarding Claim 5. Hegi et al. teach the composition of Claim 1 comprises materials that are incompatible with the photopolymerizable monomers (Page 2, Paragraph 12). Examples of the incompatible materials include water and triethanolamine (Page 7, Paragraph 23).

Regarding Claim 24. Hegi et al. teach the composition of Claim 5 wherein photopolymerizable monomer may be esters of compounds having an acryloyl group (Pages 3 - 6).

Hegi et al. are silent regarding the surface tension of the photopolymerizable monomers used. However, Ohnishi et al. also teach a composition comprising photopolymerizable monomers such as perfluorooctylethyl methacrylate (Column 8, Lines 23 - 28). While Ohnishi et al. do not expressly disclose a surface tension value, Lines 8 - 10 on Page 31 of the Instant Specification indicate the surface tension of perfluorooctylethyl methacrylate is 37.8×10^{-5} N/cm. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use perfluorooctylethyl methacrylate as one of the photopolymerizable monomers in the photosensitive composition taught by Hegi et al. The motivation would have been that perfluorooctylethyl methacrylate provides advantages such as increased hardness in the final cured product.

Regarding Claim 25. Hegi et al. teach the composition of Claim 5 wherein the compound that is incompatible with the photopolymerizable monomer is triethanol amine (Page 7, Paragraph 23).

Regarding Claim 26. Hegi et al. teach the composition of Claim 5 wherein the solvent is isopropyl alcohol (Page 8, Lines Page 25).

Regarding Claim 27. Hegi et al. teach the composition of Claim 5 is irradiated by ultraviolet light to form a cured, porous product (Page 10, Paragraph 38). Furthermore, the synthesis of the porous resin cured product via photo-curing is a product-by-process limitation that is not further limiting in as so far as the structure of the product is concerned. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695,698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Once a product appearing substantially identical is found, the burden shifts to the applicant to show an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1993).

Regarding Claim 28. Hegi et al. teach the product of Claim 27 wherein the solvents and incompatible materials have been removed (Page 10, Paragraph 39).

Regarding Claims 31 and 32. Hegi et al. teach the product of Claim 28 but do not expressly teach it is as part of a liquid crystal display element. However, Ohnishi et al. also teach a composition comprising photopolymerizable monomers wherein the cured composition is part of a liquid crystal display device (Column 10, Lines 53 - 59). At the time of invention, it would have been obvious to a person of ordinary skill in the

art to use the product taught by Hegi et al. as part of a liquid crystal display device. The motivation would have been that the product taught by Hegi et al. could provide advantages such as high contrast and low hysteresis in a liquid crystal display device.

Regarding Claim 29. Hegi et al. teach the product of Claim 27 is formed as a film (Page 18, Paragraph 77).

Regarding Claim 30. Hegi et al. teach the product of Claim 27 is applied onto a substrate (Page 10, Paragraph 40).

Regarding Claim 15. Hegi et al. teach the product of Claim 10 but do not expressly teach it is as part of a liquid crystal recording material. However, Ohnishi et al. also teach a composition comprising photopolymerizable monomers wherein the cured composition is part of a liquid crystal display device (Column 4, Lines 17 – 41; Column 10, Lines 53 – 59; Figure 3). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the product taught by Hegi et al. as part of a liquid crystal material with a recording feature. The motivation would have been that the product taught by Hegi et al. could provide advantages such as high contrast and low hysteresis in a liquid crystal material with a recording feature.

Regarding Claim 10. Hegi et al. teach the composition of Claim 1 is irradiated by ultraviolet light to form a cured, porous product (Page 10, Paragraph 38). Furthermore, the synthesis of the porous resin cured product via photo-curing is a product-by-process limitation that is not further limiting in as so far as the structure of the product is concerned. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or obvious from a product of the prior art,

the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695,698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Once a product appearing substantially identical is found, the burden shifts to the applicant to show an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1993).

Regarding Claim 11. Hegi et al. teach the product of Claim 10 wherein the solvents and incompatible materials have been removed (Page 10, Paragraph 39).

Regarding Claims 14 and 15. Hegi et al. teach the product of Claim 11 but do not expressly teach it is as part of a liquid crystal display element. However, Ohnishi et al. also teach a composition comprising photopolymerizable monomers wherein the cured composition is part of a liquid crystal display device (Column 10, Lines 53 - 59). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the product taught by Hegi et al. as part of a liquid crystal display device. The motivation would have been that the product taught by Hegi et al. could provide advantages such as high contrast and low hysteresis in a liquid crystal display device.

Regarding Claim 12. Hegi et al. teach the product of Claim 10 is formed as a film (Page 18, Paragraph 77).

Regarding Claim 13. Hegi et al. teach the product of Claim 10 is applied onto a substrate (Page 10, Paragraph 40).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 5 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1, 2, 6, and 9 of U.S. Patent No. 6,447,877. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are obvious variations upon each other.

Regarding Claim 1. Instant Claim 1 corresponds to A) a combination of Claims 1 and 2 or B) Claim 9 of U.S. Patent No. 6,447,877. While U.S. Patent No. 6,447,877 does not expressly set forth the surface tension of the photopolymerizable monomer and that it contains a fluorine or silicone atom, these limitations are taught by Ohnishi et al.

(Column 8, Lines 23 - 28). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use a photopolymerizable monomer with a surface tension in the claimed range, such as perfluorooctylethyl methacrylate, as one of the photopolymerizable monomers in the photosensitive composition. The motivation would have been that perfluorooctylethyl methacrylate, for example, provides advantages such as increased hardness in the final cured product.

Regarding Claim 5. Instant Claim 5 corresponds to Claim 6 of U.S. Patent No. 6,447,877.

Response to Arguments

Applicant's arguments filed July 11, 2008 have been fully considered but they are not persuasive because:

A) Regarding applicant's argument that Hegi et al. do not teach the claimed monomers having a fluorine or silicone atom, the Office recognizes the Hegi et al. does not teach photopolymerizable monomers comprising a fluorine or silicone atom. Hegi et al. are additionally silent regarding the surface tension of the monomers. However, Hegi et al. teach the photopolymerizable monomer may be esters of compounds having an acryloyl group (Pages 3 - 6). Ohnishi et al. also teach a composition comprising photopolymerizable monomers comprising acryloyl groups, such as perfluorooctylethyl methacrylate (Column 8, Lines 23 - 28). While Ohnishi et al. do not expressly disclose a surface tension value, Lines 8 - 10 on Page 31 of the Instant Specification indicate the surface tension of perfluorooctylethyl methacrylate is 37.8×10^{-5} N/cm. It is the Office's position that, at the time of invention, it would have been obvious to a person of ordinary skill in the art to use perfluorooctylethyl methacrylate as one of the

photopolymerizable monomers in the photosensitive composition taught by Hegi et al. The motivation would have been that perfluorooctylethyl methacrylate provides advantages such as increased hardness in the final cured product. Ohnishi et al. also teach that the presence of halogenated monomers can lower hysteresis in liquid crystal devices (Column 8, Lines 23 – 34).

B) Regarding applicant's argument that Ohnishi et al. fail to teach the combination of perfluorooctylethyl methacrylate with an incompatible material, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

C) In response to applicant's argument that Hegi et al. and Ohnishi et al. are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Hegi et al. and Ohnishi et al. are analogous art as they are from the same field of endeavor, namely compositions comprising photopolymerizable monomers comprising acryloyl groups and photopolymerization initiators. Though Hegi et al. teach their composition is prepared as a white coating composition while Ohnishi et al. teach their composition is prepared as a liquid crystal composite, Ohnishi et al. further disclose that the refractive index of liquid crystal materials may be electrically controlled to provide white-cloudy conditions so that a polarized light filler and an orientation treatment are not required (Column 1, Lines 42 – 45).

D) Regarding applicant's argument that Ohnishi et al. teach other photopolymerizable monomers with a surface tension outside the claimed range, primary reference Hegi et al. teaches the photopolymerizable monomers contain an acryloyl group (Pages 3 - 6). Accordingly, the Office submits that a person of ordinary skill in the art would be reasonably expected to select a monomer comprising an acryloyl group (such as perfluorooctylethyl methacrylate) over the other photopolymerizable monomers (polyvinyl chloride, polyvinylidene fluoride, etc.) taught by Ohnishi et al to use as the monomer in the composition taught by Hegi et al.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA WINKLER whose telephone number is

(571)270-3305. The examiner can normally be reached on Monday - Friday 7:30AM - 5PM E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo, Ph.D./
Supervisory Patent Examiner, Art Unit 1796

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October 22, 2008